

What is claimed is:

1. An image reading device comprising:

an original mounting portion on which an original  
having an image region is placed;

5        an original reading unit movable in a reading  
direction for reading the image region, the image region  
having an image region length in the reading direction;

      a movement control unit controlling the original  
reading unit to provide an acceleration region where the  
10      original reading unit accelerates from a halted state to a  
moving velocity, a constant-velocity region where the  
original reading unit maintains the moving velocity, and a  
deceleration region where the original reading unit  
decelerates from the moving velocity to the halted state, the  
15      original reading unit reading the image region at least in  
the constant-velocity region, the original reading unit  
starting to decelerate at a deceleration start position that  
is positioned between the constant-velocity region and the  
deceleration region;

20        a velocity setting unit setting the moving velocity of  
the original reading unit based on a specified image reading  
mode; and

      a deceleration-start-position setting unit setting the  
deceleration start position based on the moving velocity set  
25      by the velocity setting unit.

2. The image reading device as claimed in claim 1,  
further comprising a region-length acquisition unit acquiring  
the image region length,

wherein the deceleration-start-position setting unit  
5 includes a velocity comparison unit comparing the moving  
velocity set by the velocity setting unit with a reference  
velocity, thereby obtaining a comparison result; and

wherein, if the velocity comparison unit has obtained  
the comparison result that the moving velocity set by the  
10 velocity setting unit is greater than the reference velocity,  
the deceleration-start-position setting unit sets the  
deceleration start position to one of a position within the  
image region and a position immediately downstream of the  
image region in the reading direction, depending on the image  
15 region length and the moving velocity set by the velocity  
setting unit.

3. The image reading device as claimed in claim 2,  
wherein, if the velocity comparison unit has obtained the  
comparison result that the moving velocity set by the  
20 velocity setting unit is less than or equal to the reference  
velocity, the deceleration-start-position setting unit sets  
the deceleration start position to the position immediately  
downstream of the image region in the reading direction,  
regardless of the image region length.

25 4. The image reading device as claimed in claim 2,

wherein the original reading unit includes a storage unit storing an absolute length and a required deceleration distance, the absolute length being a length from a reading start position at which the original reading unit starts reading of the original to an absolute halt position, the  
5 required deceleration distance being a distance that is required for the original reading unit to decelerate from the moving velocity and reach the halted state;

wherein the deceleration-start-position setting unit  
10 further includes:

a required-deceleration-distance acquisition unit acquiring, from the storage unit, the required deceleration distance corresponding to the moving velocity set by the velocity setting unit; and

15 an absolute-length comparison unit comparing the absolute length with a comparison length that is a sum of the image region length and the required deceleration distance, thereby obtaining a comparison result; and

wherein the deceleration-start-position setting unit  
20 sets the deceleration start position to one of a position within the image region and a position immediately downstream of the image region in the reading direction, depending on the comparison result of the absolute-length comparison unit.

5. The image reading device as claimed in claim 4,  
25 wherein, if the velocity comparison unit has obtained the

comparison result that the moving velocity set by the velocity setting unit is greater than the reference velocity and the absolute-length comparison unit has obtained the comparison result that the absolute length is greater than or  
5 equal to the comparison length, the deceleration-start-position setting unit sets the deceleration start position to the position immediately downstream of the image region in the reading direction.

6. The image reading device as claimed in claim 4,  
10 wherein, if the velocity comparison unit has obtained the comparison result that the moving velocity set by the velocity setting unit is greater than the reference velocity and the absolute-length comparison unit has obtained the comparison result that the absolute length is less than the  
15 comparison length, the deceleration-start-position setting unit sets the deceleration start position to the position within the image region.

7. The image reading device as claimed in claim 6,  
20 wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the deceleration start position is a position that is advanced in the reading direction from the reading start position by a length that is obtained by subtracting the required deceleration distance from the absolute length.

25 8. The image reading device as claimed in claim 7,

wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the original reading unit performs deceleration reading from the deceleration start position to the position immediately downstream of the image region in the reading direction.

9. The image reading device as claimed in claim 2, wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the deceleration start position is a position that is advanced in the reading direction from the reading start position by a length that is obtained by subtracting the required deceleration distance from the absolute length.

10. The image reading device as claimed in claim 2, wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the original reading unit performs deceleration reading from the deceleration start position to the position immediately downstream of the image region in the reading direction.

11. The image reading device as claimed in claim 1, wherein the specified image reading mode is specified from a plurality of predetermined modes.

12. The image reading device as claimed in claim 11, wherein the plurality of predetermined modes includes a

plurality of monochrome modes having different resolutions in  
a scanner function, a plurality of color modes having  
different resolutions in the scanner function, a mode  
corresponding to a copy function, and a plurality of modes  
5 corresponding to original image types and resolutions in a  
facsimile function.

13. An image reading device comprising:

an original mounting portion on which an original  
having an image region is placed;

10 an original reading unit movable in a reading  
direction for reading the image region, the image region  
having an image region length in the reading direction;

a movement control unit controlling the original  
reading unit to provide an acceleration region where the  
15 original reading unit accelerates from a halted state to a  
moving velocity, a constant-velocity region where the  
original reading unit maintains the moving velocity, and a  
deceleration region where the original reading unit  
decelerates from the moving velocity to the halted state, the  
20 original reading unit reading the image region at least in  
the constant-velocity region, the original reading unit  
starting to decelerate at a deceleration start position that  
is positioned between the constant-velocity region and the  
deceleration region;

25 a region-length acquisition unit acquiring the image

region length; and

a deceleration-start-position setting unit setting the deceleration start position based on the image region length acquired by the region-length acquisition unit.

5           14. The image reading device as claimed in claim 13, wherein the deceleration-start-position setting unit includes a region-length comparison unit comparing the image region length with a reference region length, thereby obtaining a comparison result; and

10           wherein the deceleration-start-position setting unit sets the deceleration start position to one of a position within the image region and a position immediately downstream of the image region in the reading direction, depending on the comparison result of the region-length comparison unit.

15           15. The image reading device as claimed in claim 14, wherein, if the region-length comparison unit has obtained the comparison result that the image region length is greater than or equal to the reference region length, the deceleration-start-position setting unit sets the  
20           deceleration start position to the position within the image region.

          16. The image reading device as claimed in claim 15, wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the  
25           image region, the deceleration-start-position setting unit

sets the deceleration start position to a position that is advanced in the reading direction from the reading start position by the reference region length.

5        17. The image reading device as claimed in claim 16, wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the original reading unit performs deceleration reading from the deceleration start position to the position immediately downstream of the image region in the reading  
10        direction.

      18. The image reading device as claimed in claim 14, wherein, if the deceleration-start-position setting unit sets the deceleration start position to the position within the image region, the deceleration-start-position setting unit  
15        sets the deceleration start position to a position that is advanced in the reading direction from the reading start position by the reference region length.

      19. The image reading device as claimed in claim 14, wherein, if the deceleration-start-position setting unit sets  
20        the deceleration start position to the position within the image region, the original reading unit performs deceleration reading from the deceleration start position to the position immediately downstream of the image region in the reading direction.

25        20. The image reading device as claimed in claim 14,



wherein, if the region-length comparison unit has obtained the comparison result that the image region length is less than the reference region length, the deceleration-start-position setting unit sets the deceleration start position to the position immediately downstream of the image region in the reading direction.

21. The image reading device as claimed in claim 14, wherein the reference region length is obtained based on a maximum required deceleration distance that is a distance required for the original reading unit to decelerate from a maximum moving velocity and reach the halted state.